DOCUMENT-IDENTIFIER: US 4424240 A
TITLE: Polymers adherent to polyolefins

BSPR:
This invention relates to **nonwoven** webs, such as in the form of carpets, containing polyolefin fibers and a binder comprising the adhesive vinyl addition polymer described above. It is well known that it is extraordinarily difficult to bond polyolefins particularly polypropylene and this is especially evident in **nonwoven** carpet web bonding because of the comparatively small surface area of the fiber available for bonding. **Nonwoven** web containing a major amount of polypropylene fibers, including those which consist essentially or entirely of polypropylene fibers, and bonded by the polymer of this invention are unexpectedly strong and thus useful in many industrial carpets as well as home carpet applications. These carpets are particularly suitable for indoor-outdoor carpeting where stability of the adherent polymer to temperature extremes as well as light, moisture and various other weathering stresses is desired. The fibers in the **nonwoven** web may be ordered or haphazardly distributed. The mat may be formed by carding when the fibers are of such character, by virtue of **length** and flexibility, as to be amenable to the carding procedure. The fibers need not be exclusively polyolefin and may comprise natural textile **fibers such as hemp** or cotton, as well as artificial organic textile fibers or filaments including rayon, cellulose esters, vinyl resin fibers, condensation polymer fibers including polyamides and polyesters and the like. The web may be ~~a result~~ of a single card or it may be desirable to superpose plurality of such single card webs to build a mat of greater thickness for a given end use. ~~In such~~ a built up mat different layers may be disposed at different angles with respect to their fiber orientations so as to give greater strength to the built up web. The **length** of the fibers is usually at least about 2 centimeters with **lengths** about 4 centimeters being preferred although ones as short as one centimeter and longer than 5 centimeters are useful in some instances. A wide range of fiber deniers is useful with the range of 1-3 denier being preferred.

DOCUMENT-IDENTIFIER: US 5389202 A
TITLE: Process for making a high pulp content nonwoven composite fabric

BSPR:
The pulp fiber component of the composite **nonwoven** fabric may be woody and/or **non-woody plant fiber** pulp. The pulp may be a mixture of different types and/or qualities of pulp fibers. For example, one embodiment of the invention includes a pulp containing more than about 50% by weight, low-average fiber **length** pulp and less than about 50% by weight, high-average fiber **length** pulp (e.g., virgin softwood pulp). The low-average fiber **length** pulp may be characterized as having an average fiber **length** of less than about 1.2 mm. For example, the low-average fiber **length** pulp may have a fiber **length** from about 0.7 mm to about 1.2 mm. The high-average fiber **length** pulp may be characterized as having an average fiber **length** of greater than about 1.5 mm. For example, the high-average fiber **length** pulp may have an average fiber **length** from about 1.5 mm to about 6 mm. One exemplary fiber mixture contains about 75 percent, by weight, low-average fiber **length** pulp and about 25 percent, by weight, high-average fiber **length** pulp.

DOCUMENT-IDENTIFIER: US 5237945 A
TITLE: Water barrier formed from a clay-fiber mat

DEPR:
The fibers useful in forming the powdered or granular material-filled flexible articles of manufacture of the present invention are, for example, geotextile fibers, woven or **non-woven,** and the like. Any suitable fibers can be used for this purpose, particularly since the fibers have no water-impermeability purpose other than to achieve proper installation of a suitable amount of clay 16. Suitable fibers include fibers made from rayon, polypropylene, polyesters, nylon, acrylic polymers and copolymers, ceramic fiber, fiberglass, propylene-ethylene copolymers, polypropylene-polyamide copolymers, a single monofilament, polyethylene, polyurethane fibers, cotton, jute, dissolvable, e.g., polyvinyl alcohol **fibers, and other natural and biodegradable fibers, such as straw,** hay, cellulosic and the like. The preferred fiber **length** is in the range of about 0.5 to about 25 inches, more preferably about 1 to about 5 inches, and a preferred fiber denier is in the range of about 1 to about 5000, with a more preferred fiber denier of about 4 to about 500, and most preferably about 60 to about 200. The fibers used to manufacture geotextile fabrics are preferred for their bacteriological and chemical resistance but the fibers can be biodegradable since, once positioned, the fabric has little importance except as a means to install a water-absorbent material, e.g., bentonite clay and/or a polyacrylate superabsorbent polymer, in the proper position. In some installations, the thickness of the article is not important and such articles can be formed with any desired thickness, e.g., 3 mils to about 4 inches containing about 0.2 to about 30 pounds per square foot of water-absorbent material.

DOCUMENT-IDENTIFIER: US 5955023 A
TITLE: Method of forming composite particle products

BSPR:
This invention relates generally to the formation of particle composite products, and more particularly to a method of forming particle composite products from ligno-cellulosic material. As used herein, the term ligno-cellulosic material is intended to include logs, lumber, wood particles, wood chips, wood flakes, wood wafers, wood fibers, wood veneer and other wood products and parts thereof, as well as other lignin and cellulose containing matter, such as woody plants, foliage, roots, shells, pot, nuts, husks, **fibers, straw,** vine, grass, bamboo, and reeds.

CCXR:
264/109

fibrous material utilizing the dry method. Still more particularly, the pre

DOCUMENT-IDENTIFIER: US 5093051 A
TITLE: Process for making cellulose-containing products

DEPR:
Thus, the FIG. 1 apparatus includes a mat former station indicated generally at 12 at which cellulose-containing fibers F are fed into a hopper 14 which leads down into a distribution chamber 16 containing rotating agitators 18. These agitators intercept the fibers an agitate, fluff and intermix them before distributing them onto a moving horizontal porous conveyor belt 22 as a loosely interlaced mat M. The fibers F may be wood **fibers or vegetable fibers** or mixtures of both and may include organic or inorganic additives such as fillers, e.g. walnut shells, cotton stems and silica, natural or synthetic fibers, e.g. Dacron polyester, acrylic and nylon and resin or binder material, e.g. ureaformaldehyde. Usually, prior to being introduced into hopper 14, the fibers F are dried so that they have a certain moisture content, usually less than 50% by weight.

CCXR:
264/109

DOCUMENT-IDENTIFIER: US 4364197 A
TITLE: Pre-grown turf and manufacturing of pre-grown turf

BSPR:
In a preferred embodiment, both layers of **non-woven** cloth are substantially made of **flax fibers**. Such fibers are obtained through carding tow of flax. The average staple **length** ranges between 0.5 and 10 cm (3/4 and 4 inches), preferably between 2 and 5 cm (3/4 and 2 inches). They are gathered to form a **non-woven** cloth or carpet to be stitched through in a tufting fashion as described herein. The lower layer preferably weights between 100 and 400 g/m.sup.2 (0.328 and 1.311 oz/ft.sup.2); the upper one, between 100 and 300 g/m.sup.2 (0.328 and 0.983 oz/ft.sup.2). These relative positions (lower and upper) obviously depend upon the position of the carpet when placed upon the land to be turfed. These (lower and upper) basic layers are stitched together in a tufting fashion to facilitate their handling.

lengths

DOCUMENT-IDENTIFIER: US 4101604 A
TITLE: Unsaturated polyester molding compositions

DEPR:
As reinforcing fibers, there may be used inorganic fibers such as glass **fibers, asbestos fibers; vegetable fibers such as flax, hemp, cotton, and the like; and organic fibers** such as nylon, polyester, aromatic polyamide and the like. The reinforcing fibers may be present as chopped fibers having **lengths** of from about 0.1 to about 3 inches or as woven mats, **non-woven** mats and the like. Sheet molding compounds will normally have chopped fibers of from about 0.5 to about 2 inches. The quantity of reinforcing fibers used will normally be from about 5 to 70 percent, preferably from 15 to 50 percent of fibers of the total weight of the composition.

BSPR:

DOCUMENT-IDENTIFIER: US 5145892 A
TITLE: Polypropylene resin composition

BSPR:
As for the organic fibers useful in the present invention, there is no special limitation except the condition that those which do not decompose, or melt at the time of melting and kneading or moulding, should be used. For example, polyamide type fibers, polyester type fibers, polyimido fibers, polyvinyl alcohol type fibers, polyvinylidene type fibers, super high strength polyethylene fibers polyacrylonitrile type fibers, polyurethane type fibers, polyalkylene paraoxybenzoate type fibers, carbon fibers, phenol type fibers, rayon fibers, acetate **fibers, cotton fibers, flax fibers,** ramie fibers, jute fibers, wool fibers, silk fibers, a mixture of two or more of these fibers can be used. Particularly, preferable is polyamide type fibers, polyester type fibers, cotton fibers and a mixture of the above-mentioned two or more fibers. As for the shape of the organic fibers, there is no particular limitation. Any of those having thread shape, woven or knitted material shape, **non-woven** fiber shape can be useful. It is preferable for those having woven or knitted material shape and **non-woven** fiber shape, to be used after separating into monofilaments in advance. Further, as for the **length** of the organic fibers used, it is preferable to use those having a **length** cut to 1-50 mm, more preferable to 1-30 mm. Those having a **length** of 1-10 mm, are most preferable. As for the thickness of the organic fibers used, 0.5-20 denier fibers are preferable, 1-10 denier fibers are more preferable and 1-5 denier fibers are most preferable.

DOCUMENT-IDENTIFIER: US 5912407 A
TITLE: Alkaline enzyme scouring of cotton textiles

BSPR:
The scouring and bleaching operations employ massive doses of caustic chemicals such as sodium hydroxide and hydrogen peroxide at high temperatures. The cost of these chemicals is substantial, both from the standpoint of initial purchase and environmental burden cost upon disposal of the waste from the operations. The non-selective nature of the process also results in structural damage to the cellulose in the cotton. The impurities in cotton are naturally occurring compounds and as such should be able to be hydrolyzed and removed by enzymes. Various enzymes have been proposed to effect a scouring response. Japanese patent JP 7572747 describes a scouring method for vegetable derived cellulosic **fibers,** in particular ramie, by using a cellulose decomposing enzyme and a pectin decomposing enzyme. East German patent DD 264947 A1 describes a method to pretreat cotton by using a fungal enzyme complex as desizing agent. The complex may contain fungal cellulase, hemicellulase, pectinase and protease in addition to an amylase derived from fungal, animal, bacterial or vegetable origin. Benefits claimed are an avoidance of alkali and a reduced contamination of waste water. Bach and Schollmeyer (1992) Textilveredlung 27:2-6 describes that the treatment of raw cotton **fiber** with pectinase and pectinase/cellulase combinations can be bleached to a greater whiteness with hydrogen peroxide than alkaline scoured raw cotton **fiber**. While the pectinase/cellulase treated and bleached fabric was whiter than the pectinase alone bleached sample, the strength loss was much greater. In contrast, Rossner (Meilland Textilberichte 2/1993, p. 144-148) describes that cotton fabric treated with enzymes and subsequently bleached with hydrogen peroxide cannot be bleached to as great a whiteness as alkaline scoured and bleached fabric. Japanese patent JP 6220772 describes that an **enzyme** capable of releasing intact pectin from cotton can have a scouring response; the benefits being a milder treatment with reduced energy and lower cost of **water** disposal without environment pollution. The use of an oil and fat decomposing enzyme either alone or in combination with the pectin liberating enzyme is described in Japanese patent application 6-263524. The benefit of this procedure being the same as those previously described. The harshness of known scouring treatments result in reduced fabric characteristics. Further, the current processes requiring multiple processing steps at different pH and temperature conditions are time consuming and inefficient. Thus, there is a need for an improved scouring process which does not result in a reduction of superior fabric characteristics, as well as a need for more efficient processes.

CCXR: